



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
OSB1999-0177

August 10, 1999

Karen Kochenbach
Department of the Army
Portland District, Corps of Engineers
P.O. Box 2946
Portland, OR 97208-2946

Re: Biological Opinion for the West Fork Illinois River Scour Repair Project
ID No: 99-25; DSL Application SP-16403

Dear Ms. Kochenbach:

The National Marine Fisheries Service (NMFS) has enclosed the Biological Opinion (BO) that addresses the proposed project to repair the scour along the West Fork Illinois River along Highway 199 in Josephine County, Oregon. This project is described in the submitted Biological Assessment (BA). The Army Corps of Engineers is the lead agency and ODOT is the designer and will oversee the contractor building the project.

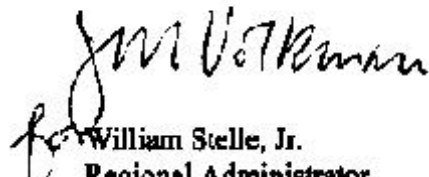
This opinion considers the potential effects of the project on Southern Oregon/Northern California coho salmon (*Oncorhynchus kisutch*) and Southern Oregon and California coastal chinook salmon (*O. tshawytscha*) which occur in the proposed project area. Southern Oregon/Northern California coho salmon were listed as threatened under the Endangered Species Act on May 6, 1997 (62 FR 24588), and critical habitat was proposed on November 25, 1997 (62 FR 62741). This opinion constitutes formal consultation for the Southern Oregon/Northern California coho salmon. The Southern Oregon and California coastal chinook salmon were proposed for listing as threatened on March 9, 1998 (63 FR 11482), and critical habitat was proposed at the same time. This opinion constitutes a formal conference for the Southern Oregon and California coastal chinook salmon.

NMFS concludes that the proposed action will not jeopardize the Southern Oregon/Northern California coho salmon or Southern Oregon and California coastal chinook salmon, or adversely modify designated or proposed critical habitat. Reasonable and prudent measures to minimize the amount and extent of incidental take are outlined in Section XI of the BO.



If you have any questions regarding this letter, please contact Nancy Munn of my staff at (503) 231-6269.

Sincerely,



William Stelle, Jr.
Regional Administrator

cc: Pieter Dykman - ODOT
Rose Owens - ODOT
Greg Apke - ODOT (with attachment)
Julie Bunnell- ODOT
Randy Reeve - ODFW
Dale Hasalem - ACOE (with attachment)
Division of State Lands

Endangered Species Act - Section 7
Consultation

Biological Opinion & Conference Opinion

West Fork Illinois River Bridge Scour Repair
Redwood Highway (OR 199), MP 31.8 - 32.2
Josephine County

Agency: Army Corps of Engineers

Consultation Conducted By: National Marine Fisheries Service,
Northwest Region

Date Issued: August 10, 1999

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I. BACKGROUND

On July 24, 1999, the National Marine Fisheries Service (NMFS) received a Biological Assessment (BA) and request from Portland District Army Corps of Engineers (ACOE) for Endangered Species Act (ESA) section 7 consultation for a bridge scour repair project at the West Fork Illinois River within the Siskiyou National Forest in Josephine County, Oregon. The Oregon Department of Transportation (ODOT) has designed and will build this project with State funds. The project is federalized through the ACOE permit required for the project. Although ACOE is the lead agency in the consultation, it will be primarily ODOT's responsibility to implement any terms and conditions documented here. The ACOE/ODOT has determined that the Southern Oregon/Northern California coho salmon (*Oncorhynchus kisutch*) (SONC coho), listed as threatened under the ESA, and the Southern Oregon and California coastal chinook salmon (*O. tshawytscha*) (SOCC chinook), which are proposed for listing, may occur within the project area. This Biological Opinion (BO) is based on the information presented in the BA and information obtained during the consultation process.

The ACOE/ODOT is proposing to repair a scoured slope located upstream of the bridge over the West Fork Illinois River along Hwy 199. This highway is the main north/south arterial which connects Crescent City and Brookings to the Cave Junction and Grants Pass area. A flood in January 1997 changed the channel morphology of the river at this site. There are five scour areas currently; the largest is compromising the integrity of the road. The proposed action would stabilize five scour areas along the roadfill by using four rock barbs to re-align the stream channel back to the north. Riprap will also be placed in the scour area. This solution will dissipate energy away from the roadfill and minimize chronic scour and episodic sediment loading into the watershed.

The effects determination was made using the methods described in *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996). The ACOE determined that the proposed actions were likely to adversely affect the indicated species.

This BO reflects the results of the consultation process. The consultation process has involved a field trip with NMFS, ODOT and Oregon Department of Fish and Wildlife (ODFW), and correspondence and communications between NMFS and ODOT to obtain additional information and clarify the BA. As appropriate, modifications to the proposal to reduce impacts to the listed and proposed species were discussed and incorporated into the proposed action. Designs were modified to provide a long term repair at this site, rather than just repairing the scour sites, which would have allowed the scour point to move upstream. The design also minimized the loss of existing trees and incorporates fish habitat-generating features into the rock buttress and hardpoints. Precautions will be taken to minimize damage to all trees in the project area and to minimize damage to the gravel bar. All in-water work will be conducted during the in-water work period (June 15 to September 15). These modifications are described in the BA.

The objective of this biological opinion is to determine whether the action to repair the scour at the West Fork Illinois River is likely to jeopardize the continued existence of the SONC coho or SOCC chinook or destroy or adversely modify critical habitat.

II. PROPOSED ACTION

The proposed action will repair a series of five localized scour “pop-outs” along the bank of the West Fork Illinois River. A concrete apron, which was previously poured to alleviate localized scour along the south bank of the river underneath the bridge, is also deteriorating and showing signs of localized undermining from river flows. There are fracture lines in the apron with large chunks missing. Some of these large chunks of concrete (reinforced with rebar) have fallen into the pool habitat along the south stream bank. The proposed action includes the following:

- Stabilize the south streambank with class 2000 riprap including the three scour areas. This riprap would extend from the large pop-out and continue downstream along the streambank to underneath the bridge. The riprap would extend from the scour depth up to the 5-year flood elevation.
- Saw cut and remove the existing concrete apron. Remove the concrete and rebar rubble from the bottom of the pool habitat.
- Stabilize the two scour areas along the north streambank with class 2000 riprap. Both will be completed in the dry (i.e., outside of the active channel).
- Place a series of four rock barbs that extend out into the thalweg of the channel. The barbs will dissipate hydraulic energy off of the road fill, minimize the chronic scour problem, and encourage the channel to move northward (but still within the historic floodplain).

A. Roadfill Scour Repair

Riprap will be placed along the scoured areas for embankment protection and stability. Access will occur from the highway, and will require some guardrail removal. An excavator will move onto the fill slope and level a work area. When the saw cutting of the concrete apron is complete, the excavator will move out along the roadfill and begin to break apart and remove the concrete rubble. Then the excavator will excavate the fill material from beneath the concrete apron. Once a slope of 1.5:1 is achieved, the excavator will place the class 2000 riprap. There will be no toe trench, although in-water excavation will occur as necessary to meet the final grade of 1.5:1. The excavator will stay out of the water except when placing riprap in the pool along the streambank. Only the bucket and arm will enter the water. The area above the 5-year flood elevation to the top of the bank will have a granular fill material which will be planted.

B. Barb Placement

Access to place the rock barbs in the channel will be across the gravel bar from the north. The short term impacts to the gravel bar would be less significant than the long-term impacts to riparian vegetation that would occur with access from the south. Once access is established, an excavator will begin

excavation of the barb key into the streambank and toe trench. The barb closest to the pool habitat will be constructed first, and subsequent upstream barbs will follow. Removal material will be placed into dump trucks and removed offsite. Excavation of the barb key and toe trench will be completed in the flowing water.

Instream activities will take approximately two weeks to complete. An erosion control plan will be in place to localize turbidity to a confined area. Measures included will be a floating silt curtain below the work zone, sediments placed at strategic locations within and below the work area, and a hazmat floating boom placed immediately upstream of the floating silt curtain.

A fish passage barrier will be placed upstream of the in-water work area. The floating silt curtain and the fish passage barrier will restrict fish from the construction area. Prior to in-water work, the area will be seined and/or electrofished by Oregon Department of Fish and Wildlife (ODFW) and ODOT.

III. BIOLOGICAL INFORMATION AND CRITICAL HABITAT

The southern Oregon/northern California coho salmon Evolutionarily Significant Unit (ESU) was listed as threatened under the ESA by the NMFS on May 6, 1997 (62 FR 24588). Biological information on SONC coho salmon may be found in Weitkamp et al. (1995). Critical habitat was designated for the SONC coho salmon on May 5, 1999 (64 FR 24049).

The southern Oregon and California coastal chinook salmon ESU was proposed for listing as threatened under the ESA on March 9, 1998 (63 FR 11482). Biological information on the SOCC chinook salmon can be found in Myers et al. (1998) and Healey (1991). Critical habitat was proposed for the SOCC chinook salmon on March 9, 1998 (63 FR 11482).

IV. EVALUATING PROPOSED ACTIONS

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NMFS must determine whether the action is likely to jeopardize the listed species and whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the initial steps of: (1) defining the biological requirements and current status of the listed species; and (2) evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NMFS evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NMFS must consider the estimated level of mortality attributable to: (1) collective effects of the proposed or continuing action; (2) the environmental baseline; and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmon's life stages that occur beyond the action area. If NMFS finds that the action is likely to jeopardize, NMFS must identify reasonable and prudent alternatives for the action.

Furthermore, NMFS evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' designated critical habitat. The NMFS must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. The NMFS identifies those effects of the action that impair the function of any essential element of critical habitat. The NMFS then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NMFS concludes that the action will adversely modify critical habitat it must identify any reasonable and prudent measures available.

For the proposed action, NMFS' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NMFS' critical habitat analysis considers the extent to which the proposed action impairs the function of essential elements necessary for migration, spawning, and rearing of the listed and proposed species under the existing environmental baseline.

A. Biological Requirements

The first step in the methods NMFS uses for applying the ESA section 7(a)(2) to listed salmon is to define the species' biological requirements that are most relevant to each consultation. NMFS also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NMFS starts with the determinations made in its decision to list the species for ESA protection and also considers new data available that is relevant to the determination (Weitkamp et al. 1995, Myers et al. 1998).

The relevant biological requirements are those necessary for SONC coho salmon and SOCC chinook salmon to survive and recover to naturally reproducing population levels at which protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful migration, spawning and rearing. The current status of the SONC coho salmon and SOCC chinook salmon, based upon their risk of extinction, has not significantly improved since the species was proposed and/or listed and, in some cases, their status may have worsened.

B. Environmental Baseline

The biological requirements of SONC coho salmon and SOCC salmon chinook are currently not being met under the environmental baseline. Their status is such that there must be a significant improvement in the environmental conditions they experience including the condition of any designated critical habitat (over those currently available under the environmental baseline). Any further degradation of these conditions would have a significant impact due to the amount of risk the listed salmon presently face under the environmental baseline.

The current range-wide status of the identified ESUs may be found in Weitkamp et al. (1995) and Myers et al. (1998). The identified actions will occur within the range of SONC coho salmon and SOCC chinook salmon. The defined action area is the area that is directly and indirectly affected. The direct effects occur at the project site and may extend upstream or downstream, based on the potential for impairing fish passage, hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect affects may occur throughout the watershed where actions described in this opinion lead to additional activities or affect ecological functions contributing to stream degradation. As such, the action area for the proposed activities include the immediate watershed containing the project and those areas upstream and downstream that may reasonably be affected, temporarily or in the long term. For the purposes of this opinion, the action area is defined as the scour area, extending 500 feet downstream of the bridge and upstream to the proposed location of the barbs. Other areas of Illinois River watershed are not expected to be directly or indirectly impacted.

The West Fork Illinois River watershed is situated within the Klamath Mountain Province physiographic province. The headwaters are located in the Klamath Mountains in northern California. The river flows north and joins the East Fork Illinois River near Cave Junction, Oregon. The Illinois River flows through the Siskiyou National Forest, entering the Rogue River near the town of Agness. The West Fork Illinois River is on Oregon Department of Environmental Quality's 303(d) list of water quality limited streams because of warm temperatures during the summer and flow modification.

The West Fork Illinois River is an unregulated, free-flowing river. The project area is categorized as having moderate fisheries habitat value and moderate fish abundance. The stream channel is braided, with the substrate dominated by gravel and cobble. Chronic erosion on the south bank contributes sediment.

Coho salmon, chinook salmon, steelhead and cutthroat trout are present in the project area. The large pool in the project area provides habitat for rearing juveniles, provides a refuge during high flows, and

serves as holding habitat during upstream migrations. The pool habitat may also provide rearing and foraging habitat for smolts during upstream migrations. Fall chinook spawn in the gravel bar within the project area.

Based on the best available information on the current status of the listed and proposed species range-wide; the population status, trends, and genetics; and the poor environmental baseline conditions within the action area (as described in the BA), NMFS concludes that the biological requirements of the identified ESU within the action area are not currently being met. There are survey data available for coho salmon in this region. Numbers of SONC coho are substantially below historic numbers, with current production largely in the Rogue and Klamath Basin (63 FR 42587). Long-term trends are decreasing. Recent droughts and change in ocean production have probably reduced run sizes. For the SOCC chinook, there is a general pattern of downward trends in abundance in most populations (Myers et al. 1998). River basins have degraded habitats resulting from agricultural and forestry practices, water diversions, urbanization, mining, and severe recent flooding. Declines have been dramatic in recent years. According to the analysis presented in the BA, the following habitat indicators are either at risk or not properly functioning within the action area: temperature, sediment (turbidity), pool quality, off-channel habitat, peak/base flows, disturbance history, and riparian reserves. Actions that do not maintain or restore properly functioning aquatic habitat conditions would be likely to jeopardize the continued existence of anadromous salmonids.

V. ANALYSIS OF EFFECTS

A. Effects of Proposed Actions

The effects determination in this opinion was made using a method for evaluating current aquatic conditions, the environmental baseline, and predicting effects of actions on them. This process is described in the document *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996). The effects of actions are expressed in terms of the expected effect - restore, maintain, or degrade - on aquatic habitat factors in the project area.

For each individual activity covered in this opinion, the effects on aquatic habitat factors can be limited by utilizing construction methods and approaches that are intended to minimize impacts. The effects of the proposed project have been evaluated based on the application of the ODOT's *General Minimization and Avoidance Measures* which are included as terms and conditions of the incidental take statement. Of particular importance are restricting the timing of the work to the in-water work period (unless an extension is approved by NMFS and ODFW); the incorporation of stringent erosion control and pollution control measures; the placement of the riprap with an irregular edge; the incorporation of structure into the riprap; limiting disturbance of the riparian area, stream bank and bed; minimizing direct discharge of sediments or pollutants into the stream; and proposed riparian plantings and in-stream habitat mitigation.

For each of the project activities, the NMFS expects that the effects of the project actions will tend to maintain or restore each of the habitat elements over the long-term (greater than one year). In the short term, temporary increase of sediments and turbidity and disturbance of riparian habitat is expected. Fish may be temporarily displaced during the in-water work. There is also an increased risk of a fuel oil spill into the action area during construction.

In the long term, the increased stability of the site will reduce sedimentation. There will be a loss of pool habitat at the main scour point, loss of riparian habitat with large riprap, and the potential removal of riparian habitat. The potential effects from the sum total of proposed activities, including mitigation, are expected to restore or maintain properly functioning stream conditions within the action area.

Summary of Specific Effects:

1. In-water work within the West Fork Illinois River could result in the disturbance of SONC coho salmon and SOCC chinook salmon. Juvenile fish rearing in the vicinity of the in-water work would most likely be displaced, although warm summer temperatures generally preclude fish presence during the in-water work period. There is a low probability of direct mortality. In-water work would last approximately 2 weeks. In-water activities that could impact fish include excavation (both fill and removal), toxicants and/or sediment entering the water, construction equipment in the water, and habitat removal and degradation.
2. The project will impact the existing scour pool habitat and riffle habitat immediately above the scour pool. Hydraulic engineers believe that the thalweg will migrate to the north and create new pool habitat.
3. Approximately 6,650 square feet of stream bank and associated vegetation will be lost for the rock placement.
4. To replace lost riparian vegetation, native riparian species will be planted in the project area. In addition, native willows will be planted along the ripraped stream bank.
5. Short term increases in turbidity and sedimentation resulting from construction will be offset by reduced erosion of soil in the scour area. The amount and duration of any increase in turbidity will be limited because of the implementation of best management practices to control sediment. Any increase in turbidity because of construction would be offset by the reduced erosion and input of sediment from the project area under existing conditions.
6. ODOT has made a commitment to spend \$30,000 on in-stream habitat or riparian habitat rehabilitation in the watershed. ODOT biologists, an ODFW biologist, and a NMFS biologist will meet after construction is complete and develop a mitigation plan that will address factors limiting fish production in the Illinois River watershed.

B. Effects on Critical Habitat

NMFS designates critical habitat based on physical and biological features that are essential to the listed species. Essential features for designated critical habitat include substrate, water quality, water quantity, water temperature, food, riparian vegetation, access, water velocity, space and safe passage. Critical habitat has been designated for the SONC coho salmon. For each of the proposed activities, NMFS expects that the effects will tend to maintain or restore properly functioning conditions in the watershed under current baseline conditions over the long term. The existing channel edge provides poor habitat for juveniles in the summer because of the lack of cover and high summer temperatures. Additional riparian habitat would be lost during future high flows as the headwall moves upstream. In addition, all trees within the project area will be saved unless they pose a safety hazard or prevent access to the site. Any trees that are cut will be left on-site for habitat improvement activities. Finally, the commitment to provide in-stream or riparian habitat rehabilitation will provide a net benefit for the watershed.

C. Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." For the purposes of this analysis, the general action area is the scour area, extending 500 feet downstream of the bridge and upstream to the proposed location of the barbs. Other activities within the watershed have the potential to impact fish and habitat within the action area. Future Federal actions, including the ongoing operation of hydropower systems, hatcheries, fisheries, and land management activities are being (or have been) reviewed through separate section 7 consultation processes.

A wide variety of actions occur within the watershed defined within the BO. NMFS is not aware of any significant change in such non-Federal activities that are reasonably certain to occur. NMFS assumes that future private and State actions will continue at similar intensities as in recent years.

VI. CONCLUSION

NMFS has determined, based on the available information, that the proposed action is expected to restore or maintain properly functioning stream conditions within the action area. Consequently, the proposed action covered in this opinion is not likely to jeopardize the continued existence of SONC coho salmon or SOCC chinook salmon or adversely modify critical habitat. NMFS used the best available scientific and commercial data to apply its jeopardy analysis, when analyzing the effects of the proposed action on the biological requirements of the species relative to the environmental baseline, together with cumulative effects. NMFS applied its evaluation methodology (NMFS 1996) to the proposed action and found that it would cause minor, short-term adverse degradation of anadromous

salmonid habitat due to sediment impacts and in-water construction. These effects will be balanced in the long-term through the habitat enhancement activities. Direct mortality from this project may occur during the in-water work but the level of mortality is considered minimal and would not result in jeopardy.

VII. REINITIATION OF CONSULTATION

Consultation must be reinitiated if: the amount or extent of taking specified in the Incidental Take Statement is exceeded, or is expected to be exceeded; new information reveals effects of the action may affect listed species in a way not previously considered; the action is modified in a way that causes an effect on listed species that was not previously considered; or, a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16). To re-initiate consultation, the ACOE/ODOT must contact the Habitat Conservation Division (Oregon Branch Office) of NMFS.

VIII. REFERENCES

DEQ 1996. 303d List of Water Quality Limited Streams, as Required Under the Clean Water Act. Oregon Department of Environmental Quality (DEQ), Portland, Or. 1996. (www.deq.state.or.us/wq/303dlist/303dpage.htm).

DEQ 1998. Draft 303d List of Water Quality Limited Streams, as Required Under the Clean Water Act. Oregon Department of Environmental Quality (DEQ), Portland, Or. 1998. (www.deq.state.or.us/wq/303dlist/303dpage.htm).

DSL 1996. Essential Indigenous Salmonid Habitat, Designated Areas, (OAR 141-102-030). Oregon Division of State Lands. Portland, Or. 1996.

Healey, M.C. 1991. Life history of chinook salmon (*Oncorhynchus tshawytscha*). Pages 311-393. In: Groot, C. And L. Margolis (eds.). Pacific salmon life histories. Vancouver, British Columbia. University of British Columbia Press.

Myers, J.M., R.G. Kope, G.J. Bryant, D. Teel, L.J. Lieber, T.C. Wainwright, W.S. Grant, F.W. Waknitz, K. Neely, S.T. Lindley, R.S. Waples. 1998. Status review of chinook salmon from Washington, Idaho, Oregon, and California. U.S. Dept. Commer., NOAA Tech. Memo. NMFS-NWFSC-35, 443p.

NMFS (National Marine Fisheries Service) 1996. Making Endangered Species Act determinations of effect for individual and grouped actions at the watershed scale. Habitat Conservation Program, Portland, Oregon.

ODFW 1996. Database -- Salmonid Distribution and Habitat Utilization, Arc/Info GIS coverages. Portland, Or. 1996. (rainbow.dfw.state.or.us/ftp/).

Weitkamp, L.A., T.C. Wainwright, G.J. Brant, G.B. Miller, D.J. Teel, R.G. Kope, and R.S. Waples. 1995. Status Review of Coho Salmon from Washington, Oregon, and California. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-NWFWC-24, 258 p.

IX. INCIDENTAL TAKE STATEMENT

Sections 4 (d) and 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. Harass is defined as actions that create the likelihood of injuring listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

A. Amount or Extent of the Take

The NMFS anticipates that the action covered by this Biological Opinion has more than a negligible likelihood of resulting in incidental take of SONC coho salmon because of detrimental effects from increased sediment levels (non-lethal) and the potential for direct incidental take during in-water work (lethal and non-lethal). Effects of actions such as these are largely unquantifiable in the short term, and are not expected to be measurable as long-term effects on habitat or population levels. Therefore, even though NMFS expects some low level incidental take to occur due to the actions covered by this Biological Opinion, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the species itself. In instances such as these, the NMFS designates the expected level of take as "unquantifiable." Based on the information in the BA, NMFS anticipates that an unquantifiable amount of incidental take could occur as a result of the actions

covered by this Biological Opinion. The extent of the take is limited to the project area and extending downstream as far as 500 feet downstream of the main scour area.

B. Reasonable and Prudent Measures

The NMFS believes that the following reasonable and prudent measures are necessary and appropriate to avoid or minimize take of the above species.

1. To minimize the amount and extent of incidental take from construction activities within the stream channel, measures shall be taken to limit the duration of in-water work, and to time such work to occur when listed fish are absent.
2. To minimize the amount and extent of incidental take from construction activities in or near stream channels, effective erosion and pollution control and revegetation measures shall be developed and implemented to minimize the movement of soils and sediment both into and within the stream channel, and to stabilize bare soil over both the short term and long term.
3. To minimize the amount and extent of take from loss of habitat and to minimize impacts to critical habitat, measures shall be taken to minimize impacts to riparian habitat, or where impacts are unavoidable, to replace lost riparian habitat function. Measures shall be taken to minimize the use of riprap.
4. To ensure effectiveness of implementation of the reasonable and prudent measures, all plantings and mitigation sites shall be monitored and meet criteria as described below in the terms and conditions. Also, erosion control measures shall be monitored and evaluated both during and following construction.

C. Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the ACOE/ODOT must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. In-water work:
 - a. Movement of equipment on the exposed gravel bar shall be minimized to the greatest extent practicable.
 - b. Fish passage through the project area must not be blocked for more more than 14 days. The silt curtain (fish barrier) must not be in place for more than 14 days. When the upstream fish barrier and the downstream floating silt curtain is in-place and secure, the ODOT biologist and ODFW biologist will electrofish and/or seine to remove any trapped fish. All collected fish will be re-located unharmed downstream of the project area.

All work within the active channel of all anadromous fish-bearing systems, or in systems which could potentially contribute sediment or toxicants to downstream fish-bearing systems, will be completed within ODFW's in-water work period. Any extensions of the in-water work period will first be approved by and coordinated with ODFW and NMFS.

- b. Only clean, non-erodible, upland angular rock of sufficient size for long-term bank armoring will be employed.
- c. Alteration or disturbance of stream banks and existing riparian vegetation will be minimized. Where bank work is necessary, bank protection material shall be placed to maintain normal waterway configuration. Waterway bank slopes which are not protected by riprap will be left no steeper than 1:2. Bank slope protection will favor biological methods of stabilization.
- d. No pollutant of any kind (petroleum products, fresh concrete, silt, etc.) shall come in contact with the active flowing stream.
- e. Waste materials and spoils will be placed above the bank line and away from any wetlands.

2. Erosion and Pollution Control

An Erosion Control Plan (ECP) will be prepared by ODOT's erosion control staff and implemented by the contractor. The ECP will outline how and to what specifications various erosion control devices will be installed to meet water quality standards, and will provide a specific inspection protocol and time response. Erosion control measures will be sufficient to ensure compliance with all applicable water quality standards.

- a. Erosion Control measures shall include (but not be limited to) the following:
 - i. Temporary plastic sheeting for immediate protection of open areas (where seeding/ mulching are not appropriate), in accordance with ODOT's Standard Specifications.
 - ii. Erosion control blankets or heavy duty matting (e.g., jute) may be used on steep unstable slopes.
 - iii. Sills or barriers may be placed in drainage ditches along cut slopes and on steep grades to trap sediment and prevent scouring of the ditches. The barriers will be constructed from rock and straw bales.

- iv. Biobags, weed-free straw bales and loose straw may be used for temporary erosion control. Temporary erosion and sediment controls will be used on all exposed slopes during any hiatus in work on exposed slopes.
- b. Effective erosion control measures shall be in place at all times during the contract. Construction within the 5-year floodplain will not begin until all temporary erosion controls (e.g., straw bales, silt fences) are in place, downslope of project activities within the riparian area. Erosion control structures will be maintained throughout the life of the contract.
- c. All temporarily-disturbed areas will be seeded and mulched. Erosion control seeding and mulching, and placement of erosion control blankets and mats (if applicable) will be completed on all areas of bare soil within 7 days of exposure within 150 feet of waterways, wetlands or other sensitive areas, and in all areas during the wet season (after October 1). All other areas will be stabilized within 14 days of exposure. Efforts will be made to cover disturbed areas as soon as possible after exposure.
- d. All erosion control devices will be inspected during construction to ensure that they are working adequately. Erosion control devices will be inspected daily during the rainy season, weekly during the dry season, monthly on inactive sites. Work crews will be mobilized to make immediate repairs to the erosion controls, or to install erosion controls during working and off-hours. Should a control measure not function effectively, the control measure will be immediately repaired or replaced. Additional controls will be installed as necessary.
- e. If soil erosion and sediment resulting from construction activities is not effectively controlled, the Engineer will limit the amount of disturbed area to that which can be adequately controlled.
- f. Sediment will be removed from sediment controls once it has reached 1/3 of the exposed height of the control. Whenever straw bales are used, they will be staked and dug into the ground 12 cm. Catch basins shall be maintained so that no more than 15 cm of sediment depth accumulates within traps or sumps.
- g. Where feasible, sediment-laden water created by construction activity shall be filtered before it leaves the right-of-way or enters an aquatic resource area. Silt fences or other detention methods will be installed as close as possible to culvert outlets to reduce the amount of sediment entering aquatic systems.
- h. A supply of erosion control materials (e.g., straw bales and clean straw mulch) will be kept on hand to cover small sites that may become bare and to respond to sediment emergencies.

- i. All equipment that is used for instream work will be cleaned prior to entering the two-year floodplain. External oil and grease will be removed, along with dirt and mud. Untreated wash and rinse water will not be discharged into streams and rivers without adequate treatment.
- j. On cut slopes steeper than 1:2 a tackified seed mulch will be used so that the seed does not wash away before germination and rooting occurs. In steep locations, a hydro-mulch will be applied at 1.5 times the rate.
- k. Material removed during excavation shall only be placed in locations where it cannot enter sensitive aquatic resources. Conservation of topsoil (removal, storage and reuse) will be employed.
- l. Measures will be taken to prevent construction debris from falling into any aquatic resource. Any material that falls into a stream during construction operations will be removed in a manner that has a minimum impact on the streambed and water quality.
- m. ODOT actions will follow all provisions of the Clean Water Act (40 CFR Subchapter D) and DEQ's provisions for maintenance of water quality standards not to be exceeded within the Illinois River Basin (OAR Chapter 340, Division 41). Toxic substances shall not be introduced above natural background levels in waters of the state in amounts which may be harmful to aquatic life. Any turbidity caused by this project shall not exceed DEQ water quality standards.
- n. The Contractor will develop an adequate, site-specific Spill Prevention and Countermeasure or Pollution Control Plan (PCP), and is responsible for containment and removal of any toxicants released. The Contractor will be monitored by the ODOT Engineer to ensure compliance with this PCP. The PCP shall include the following:
 - i. a site plan and narrative describing the methods of erosion/sediment control to be used to prevent erosion and sediment for contractor's operations related to disposal sites, borrow pits operations, haul roads, equipment storage sites, fueling operations and staging areas.
 - ii. methods for confining and removing and disposing of excess concrete, cement and other mortars. Also identify measures for washout facilities.
 - iii. provide a spill containment and control plan that includes: notification procedures; specific clean up and disposal instructions for different products; quick response containment and clean up measures which will be available on site; proposed methods for disposal of spilled materials; and employee training for spill containment.

- iv. identify measures to be used to reduce and recycle hazardous and non-hazardous waste generated from the project, including the following: the types of materials, estimated quantity, storage methods, and disposal methods.
 - v. the person identified in 00280 as the Erosion and Pollutant Control Manager (EPCM) shall also be responsible for the management of the contractor's PCP.
- o. Areas for fuel storage and servicing of construction equipment and vehicles will be located at least 150 feet away from any water body. Once the excavator is placed at the bottom of the slope, it can be refueled at that location. However, the contractor must write stringent protection measures in the Spill Prevention and Countermeasures Plan so that spill control supplies are available on the riverbank before the excavator is lowered.
 - p. Hazmat booms will be installed in all aquatic systems where:
 - i. Significant in-water work will occur, or where significant work occurs within the 5-year floodplain of the system, or where sediment/toxicant spills are possible.
 - ii. The aquatic system can support a boom setup (i.e. the creek is large enough, low-moderate gradient).
 - q. Hazmat booms will be maintained on-site in locations where "diapering" of vehicles to catch any toxicants (oils, greases, brake fluid) will be mandated when the vehicles have any potential to contribute toxic materials into aquatic systems.
 - r. No surface application of nitrogen fertilizer will be used within 50 feet of any aquatic resource.

3. Riparian Issues

- a. Alteration of native vegetation will be minimized. Whenever trees or shrubs must be removed during the course of the project, the above ground portion of the vegetation will be pruned or cut so that the roots are left intact. This will reduce erosion while still allowing room to work.
- b. All exposed areas greater than 1000 ft² within the riparian corridor will have a replanting plan. The plan will be appropriate for the local plant community.
- c. Riparian overstory vegetation removed will have a replacement rate of 1.5:1. Replacement will occur within the project vicinity where possible and within the watershed at a minimum. The re-vegetation will include planting 15 western red cedar,

15 ponderosa pine, and 15 Douglas fir. Tublings are required for this project. Trees must be kept healthy until the fall rains begin.

- d. Following completion of the construction, the ODOT biologist will convene a site visit to examine riparian habitat function in the watershed, and determine rehabilitation needs. The rehabilitation will be designed and implemented prior to January 1, 2001.

4. Monitoring

- a. NMFS requests monitoring of the action area. The monitoring report shall include photo surveys, cross-section data of the thalweg profiles, information of the deposition of sediment and other material through the project area. The monitoring should be done one year following construction, and again at year 3 and year 5. A report documenting the conditions will be prepared and provided to NMFS (Oregon Branch) for review.
- b. Failed plantings and structures will be replaced, if replacement would potentially succeed. In cases of failed design, mitigation will generally be sought on another project, in a more appropriate location.